Autoantibodies in the nervous system

Autoantibodies in the nervous system: pathophysiology and new therapeutic strategies

Summary

Antibodies are able to target and eliminate foreign pathogens such as viruses and bacteria. However, when the tolerance fails, antibodies can mistakenly target and damage tissues and organs from our own body, resulting in antibody-mediated autoimmune disorders.

Autoimmune encephalitis is a neurological disorder with prominent psychotic symptoms, caused by the presence of antibodies against neuronal surface receptors. The presence of these autoantibodies in purely psychotic disorders, even though rare, seems to be associated with a strong disease phenotype. The dentification and characterization of known and novel neuronal autoantibodies will help to comprehend the disease mechanisms and guarantee an accurate diagnosis and treatment.

Myasthenia gravis is characterized by muscle weakness and fatigue and in most of the cases, antibodies against the acetylcholine receptor. The identification of susceptibility factors like Dok7 help to understand differences between patients and to design novel treatments. Additionally, the depletion of plasma cell with the novel proteasome inhibitor, ixazomib, has shown a strong treatment efficacy in myasthenia gravis. Knowledge will smooth the path towards more specific therapies, circumventing the effects of systemic immune suppression and increasing tolerability.